

## CLAIMS

We claim:

1. An ion implanting apparatus comprising:
  - a wafer cassette capable of loading a plurality of wafers;
  - an implanting chamber including an implanting base;
  - a cassette-transferring module for moving the wafer cassette to a predetermined position; and
  - a wafer-transferring module for moving the wafer from the wafer cassette to the implanting base.
2. The ion implanting apparatus of Claim 1, wherein the wafer cassette comprises a plurality of irradiation trays for loading the wafer.
3. The ion implanting apparatus of Claim 2, wherein the implanting base comprises a guiding slot for guiding the irradiation tray.
4. The ion implanting apparatus of Claim 2, further comprising:
  - an isolative sleeve, on which the implanting base is positioned; and
  - a current integrator electrically connected to the implanting base.

5. The ion implanting apparatus of Claim 1, wherein the cassette-transferring module comprises:

a rack positioned on the wafer cassette;

a gear functioning to drive the rack through rotation so as to move the wafer cassette forward; and

a first stepping motor for driving the gear.

6. The ion implanting apparatus of Claim 5, wherein the cassette-transferring module further comprises a guiding chute for guiding the moving direction of the wafer cassette.

7. The ion implanting apparatus of Claim 1, wherein the wafer-transferring module comprises:

a push plate for moving the wafer from the wafer cassette to the implanting base; and

a second stepping motor for driving the push plate.

8. The ion implanting apparatus of Claim 1, further comprising:

an ion generator for generating an ion beam;

a mass analysis magnet positioned between the implanting chamber and the ion generator;

a first multipole moment magnet positioned between the mass analysis magnet and the implanting chamber;

a deflection board positioned between the first multipole moment magnet and the implanting chamber; and

a second multipole moment magnet positioned between the deflection board and the implanting chamber.

9. The ion implanting apparatus of Claim 8, wherein the second multipole moment magnet is a quadrupole moment magnet for adjusting the direction of the ion beam to be perpendicular to the surface of the wafer.

10. The ion implanting apparatus of Claim 8, further comprising:  
a gated vacuum valve positioned between the implanting chamber and the ion generator; and  
an extension tube positioned between the implanting chamber and the gated vacuum valve.

11. An ion implanting apparatus, comprising:  
an ion implanting chamber;  
an ion generator for generating an ion beam;  
a mass analysis magnet positioned between the implanting chamber and the ion generator;  
a first multipole moment magnet positioned between the mass analysis magnet and the implanting chamber;  
a deflection board positioned between the first multipole moment magnet and the implanting chamber; and  
a second multipole moment magnet positioned between the deflection board and the implanting chamber.

12. The ion implanting apparatus of Claim 11, wherein the second multipole moment magnet is a quadrupole moment magnet for adjusting the direction of the ion beam to be perpendicular to the surface of the wafer.

13. The ion implanting apparatus of Claim 11, further comprising:

a gated vacuum valve positioned between the implanting chamber and the ion generator; and

an extension tube positioned between the implanting chamber and the gated vacuum valve.